

## **Application of artificial intelligence and machine learning for BIM : review**

Bassir, David; Lodge, Hugo; Chang, Haochen; **Majak, Jüri**; Chen, Gonfa International journal for simulation and multidisciplinary design optimization 2023 / art. 5 <https://doi.org/10.1051/smido/2023005>

## **Applications of digital twins for demand side recommendation scheme with consumer comfort constraints**

**Onile, Abiodun Emmanuel; Belikov, Juri; Petlenkov, Eduard**; Levron, Yoash IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT Europe 2023) : proceedings 2023 / 5 p <https://doi.org/10.1109/ISGTEUROPE56780.2023.10407399>

## **Augmented reality interface for industrial robot control and teleoperation**

**Ordile, Laura; Bondarenko, Yevhen; Pizzagalli, Simone Luca; Kuts, Vladimir; Otto, Tauno** EuroXR 2021: Proceedings of the Virtual EuroXR Conference 2021 / p. 15-19 <https://sarjaweb.vtt.fi/pdf/technology/2021/T395.pdf> <https://doi.org/10.32040/2242-122X.2021.T395>

## **Background for development methodology for creating the digital twin for propulsion drive of an electric vehicle**

**Rjabtšikov, Viktor** 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Tallinn, Estonia, September 8-10, 2021 2022 / p. 27-28 : ill [https://www.estr.ee/record=b5457278\\*est](https://www.estr.ee/record=b5457278*est)

## **Biodigitaalse muutuste lainel = Driving the biodigital transition**

**Valk-Siska, Veronika Maja** : Eesti arhitektuuri ajakiri = Estonian architectural review 2021 / lk. 82-87 : ill [https://www.estr.ee/record=b1072550\\*est](https://www.estr.ee/record=b1072550*est) <https://ajakirimaja.ee/veronika-valk-siska-biodigitaalse-muutuste-lainel/>

## **Conceptual modelling of an EV-permanent magnet synchronous motor digital twin**

**Ibrahim, Mahmoud; Rjabtšikov, Viktor; Jegorov, Sergei; Rassölklin, Anton; Vaimann, Toomas; Kallaste, Ants** 2022 IEEE 20th International Power Electronics and Motion Control Conference (PEMC) : Brasov, Romania, 25-28 Sept. 2022 : proceedings 2022 / p. 156-160 <https://doi.org/10.1109/PEMC51159.2022.9962943>

## **Creating digital twins fo electric vehicles using Unity 3D, Unreal Engine, and Nvidia Omniverse : a comprehensive overview**

**Rjabtšikov, Viktor** 22nd International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral School of Energy and Geotechnology III : Pärnu, Estonia, August 23-26, 2023 2023 / p. 21-22 : ill [https://www.estr.ee/record=b5570906\\*est](https://www.estr.ee/record=b5570906*est)

## **Creation of digital twin models for renovation: an integrative literature review**

**Löhmus, Daniel; Pikas, Ergo** Proceedings of the 2023 European Conference on Computing in Construction and the 40th International CIB W78 Conference 2023 / art. 303649 <https://doi.org/10.35490/EC3.2023.307>

## **Development of digital twin for robotic arm**

Bratchikov, Sterpan; Abdullin, Artur; **Demidova, Galina**; Lukichev, Dmitry 2021 IEEE 19th International Power Electronics and Motion Control Conference, The Silesian University of Technology Gliwice, Poland, 25 - 29 April, 2021 (PEMC) : proceedings 2021 / p. 717-723 <https://doi.org/10.1109/PEMC48073.2021.9432535>

## **Development of digital twin-based learning from demonstration system for industrial robots**

**Bondarenko, Yevhen** 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Tallinn, Estonia, September 8-10, 2021 2021 / p. 19-20 : ill [https://www.estr.ee/record=b5457278\\*est](https://www.estr.ee/record=b5457278*est)

## **Digitaalkaksikud diagnostika rakenduseks**

**Vaimann, Toomas** Elektrila 2023 / lk. 24-25 [https://www.estr.ee/record=b1240496\\*est](https://www.estr.ee/record=b1240496*est)

## **Digitaalse kaksikuga juhitav logistikarobot Boxbot**

Horisont 2021 / lk. 5 : fot [https://www.estr.ee/record=b1072243\\*est](https://www.estr.ee/record=b1072243*est)

## **Digital Twin : concept of hybrid programming for industrial robots - use case**

**Kuts, Vladimir; Sarkans, Martinš; Otto, Tauno; Tähemaa, Toivo; Bondarenko, Yevhen** ASME 2019 International Mechanical Engineering Congress and Exposition : conference proceedings 2019 / Paper No: IMECE2019-10583, V02BT02A005; 8 pages <https://doi.org/10.1115/IMECE2019-10583>

## **Digital Twin : industrial robot kinematic model integration to the virtual reality environment**

**Kuts, Vladimir; Cherezova, Natalia; Sarkans, Martinš; Otto, Tauno** Journal of machine engineering 2020 / p. 53–64 <https://doi.org/10.36897/jme/120182> Journal metrics at Scopus Article at Scopus

## **Digital Twin : universal user interface for online management of the manufacturing system**

**Kuts, Vladimir; Bondarenko, Yevhen; Gavriljuk, Marietta; Partyshev, Andriy; Jegorov, Sergei; Pizzagalli, Simone Luca; Otto, Tauno** Proceedings of the ASME 2021 International Mechanical Engineering Congress and Exposition 2021 / paper no: IMECE2021-69092, 7 p <https://doi.org/10.1115/IMECE2021-69092>

- Digital Twin as a virtual sensor for wind turbine applications**  
**Ibrahim, Mahmoud; Rassölklin, Anton; Vaimann, Toomas; Kallaste, Ants; Zakis, Janis; Hyunh, Van Khang; Pomarnacki, Raimondas** Energies 2023 / art. 6246 <https://doi.org/10.3390/en16176246>
- Digital twin based learning from demonstration system for industrial robots**  
**Bondarenko, Yevhen; Pizzagalli, Simone Luca; Kuts, Vladimir; Petlenkov, Eduard; Otto, Tauno** Proceedings of the ASME 2023 International Mechanical Engineering Congress and Exposition 2023
- Digital twin based synchronised control and simulation of the industrial robotic cell using virtual reality**  
**Kuts, Vladimir; Otto, Tauno; Tähemaa, Toivo; Bondarenko, Yevhen** Journal of machine engineering 2019 / p. 128–145 : ill  
<https://doi.org/10.5604/01.3001.0013.0464> [Journal metrics at Scopus](#) [Article at Scopus](#)
- Digital twin for FANUC robots: Industrial robot programming and simulation using virtual reality**  
**Garg, Gaurav; Kuts, Vladimir; Anbarjafari, Gholamreza** Sustainability (Switzerland) 2021 / Art. 10336  
<https://doi.org/10.3390/su131810336> [Journal metrics at Scopus](#) [Article at Scopus](#) [Journal metrics at WOS](#) [Article at WOS](#)
- Digital twin for propulsion drive of autonomous electric vehicle**  
**Rassölklin, Anton** X Międzynarodowa Konferencja "Nauki społeczne i techniczne – zakres współpracy na rzecz postępu społecznego i technologicznego" 2020 / p. [36-37] : ill [https://mcbi.pl/wp-content/uploads/2020/06/skrypt\\_abstrakty\\_mailing-1.pdf](https://mcbi.pl/wp-content/uploads/2020/06/skrypt_abstrakty_mailing-1.pdf)
- Digital Twin of Wind Generator for Modelling Various Turbine Characteristics**  
**Raja, Hadi Ashraf; Autsou, Siarhei; Kudelina, Karolina; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Pomarnacki, Raimondas; Hyunh, Van Khang** 2023 International Conference on Electrical Drives and Power Electronics (EDPE) 2023 / p. 1-5  
<https://doi.org/10.1109/EDPE58625.2023.10274050>
- Digital twin of wind generator to simulate different turbine characteristics using IoT**  
**Raja, Hadi Ashraf; Kudelina, Karolina; Rjabtšikov, Viktor; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Pomarnacki, Raimondas; Hyunh, Van Khang** Proceedings of the Future Technologies Conference (FTC) 2023. Vol. 1 2023 / p. 123-132 [https://doi.org/10.1007/978-3-031-47454-5\\_9](https://doi.org/10.1007/978-3-031-47454-5_9)
- Digital twin service unit development for an EV induction motor fault detection**  
**Rjabtšikov, Viktor; Ibrahim, Mahmoud; Asad, Bilal; Rassölklin, Anton; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Stępien, Mariusz; Krawczyk, Mateusz** 2023 IEEE International Conference on Electric Machines and Drives (IEMDC) 2023 / 5 p  
<https://doi.org/10.1109/IEMDC55163.2023.10239085>
- Digital Twin service unit for AC motor stator inter-turn short circuit fault detection**  
**Rjabtšikov, Viktor; Rassölklin, Anton; Asad, Bilal; Vaimann, Toomas; Kallaste, Ants; Kuts, Vladimir; Jegorov, Sergei; Stępien, Mariusz; Krawczyk, Mateusz** 2021 28th International Workshop on Electric Drives : Improving Reliability of Electric Drives (IWED) 2021 <https://doi.org/10.1109/IWED52055.2021.9376328>
- Digital twin simulations based reinforcement learning for navigation and control of a wheel-on-leg mobile robot**  
**Alsaleh, Saleh Ragheb Saleh; Tepljakov, Aleksei; Tamre, Mart; Kuts, Vladimir; Petlenkov, Eduard** Proceedings of ASME 2022 International Mechanical Engineering Congress and Exposition (IMECE2022), 2B: Columbus, Ohio, USA, October 30 - November 3, 2022 2022 / art. IMECE2022-95411, V02BT02A025, 8 p <https://doi.org/10.1115/IMECE2022-95411>
- Digital twin-based EV permanent magnet synchronous motor for condition monitoring**  
**Ibrahim, Mahmoud** 22nd International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral School of Energy and Geotechnology III : Pärnu, Estonia, August 23-26, 2023 2023 / p. 19-20 : ill  
[https://www.esther.ee/record=b5570906\\*est](https://www.esther.ee/record=b5570906*est)
- Digital twins for cities and regions : global challenges, regional initiatives, European approaches**  
**Kern, Leyla; Dembski, Fabian; Wössner, Uwe** EU Conference on modelling for policy support, 22-26 November 2021, Brussels : Abstracts 2021 / p. 51-54 [https://knowledge4policy.ec.europa.eu/sites/default/files/2021\\_EU\\_CONF\\_MOD\\_Booklet\\_of\\_abstracts.pdf](https://knowledge4policy.ec.europa.eu/sites/default/files/2021_EU_CONF_MOD_Booklet_of_abstracts.pdf)
- Digital twins for designing energy management systems for microgrids: Implementation example based on TalTech Campulse project**  
**Korõtko, Tarmo; Zahraoui, Younes; Rosin, Argo; Agabus, Hannes** 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 6 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227475>
- Digital twins in extended reality for control system applications**  
**Jeršov, Stanislav; Tepljakov, Aleksei** 2020 43rd International Conference on Telecommunications and Signal Processing : TSP 2020, Milan, Italy, July 7-9, 2020 2020 / art. 162353, p. 274-279 <https://doi.org/10.1109/TSP49548.2020.9163557>
- Emerging role of industry 5.0 digital twins in demand response electricity market and applications**  
**Onile, Abiodun Emmanuel; Belikov, Juri; Petlenkov, Eduard; Levron, Yoash** IEEE PES Innovative Smart Grid Technologies Conference Europe (ISGT Europe 2023) : proceedings 2023 / 6 p <https://doi.org/10.1109/ISGTEUROPE56780.2023.10407322>

**Estonia huku uurimine jätkub, kuigi valitsus pole lisaraha veel eraldanud [Võrguväljaanne]**

Linnart, Mart err.ee 2022 [Estonia huku uurimine jätkub, kuigi valitsus pole lisaraha veel eraldanud](#)

**Evaluation of virtual reality interface interaction methods for digital twin industrial robot programming and control, a pilot study**

**Pizzagalli, Simone Luca; Kuts, Vladimir; Bondarenko, Yevhen; Otto, Tauno** Proceedings of the ASME 2021 International Mechanical Engineering Congress and Exposition 2021 / paper no: IMECE2021-69408, 9 p <https://doi.org/10.1115/IMECE2021-69408>

**EV-Permanent magnet synchronous motor control strategy evaluation based on digital twin concept**

**Ibrahim, Mahmoud; Rjabtšikov, Viktor** 2023 IEEE 17th International Conference on Compatibility, Power Electronics and Power Engineering (CPE-POWERENG) 2023 / 5 p <https://doi.org/10.1109/CPE-POWERENG58103.2023.10227410>

**EV-powertrain test bench for digital twin development**

**Rjabtšikov, Viktor; Ibrahim, Mahmoud; Rassölklin, Anton; Vaimann, Toomas; Kallas, Ants** 2022 IEEE 20th International Power Electronics and Motion Control Conference (PEMC) : Brasov, Romania, 25-28 Sept. 2022 : proceedings 2022 / p. 559-563 : ill <https://doi.org/10.1109/PEMC51159.2022.9962879>

**An EV-traction inverter data-driven modelling for digital twin development**

**Ibrahim, Akram Abdalla Mohammed; Raja, Hadi Ashraf; Rassölklin, Anton; Vaimann, Toomas; Kallaste, Ants** 2023 23rd International Scientific Conference on Electric Power Engineering (EPE) 2023 / 5 p <https://doi.org/10.1109/EPE58302.2023.10149230>

**Green, digital, inclusive : new directions in urban and regional planning**

**Dembski, Fabian**; Linzer, Helena; Voigt, Andreas; Wieshofer, Isabel AESOP annual congress space for species : redefining spatial justice - book of abstracts 2022 / p. 432-433 <https://proceedings.aesop-planning.eu/index.php/aesopro/issue/view/13/13>

**Industrial collaborative robot digital twin integration and control using robot operating system**

**Diachenko, Danyl; Partyshev, Andriy; Pizzagalli, Simone Luca; Bondarenko, Yevhen; Otto, Tauno; Kuts, Vladimir** Journal of Machine Engineering 2022 / p. 57 - 67 <https://doi.org/10.36897/jme/148110> [Journal metrics at Scopus Article at Scopus](#)

**Model-based service provisioning in optical networks**

Karunakaran, Vignesh; Müller, Jasper; Slyne, Frank; **Kaeval, Kaida**; Troia, Sebastian; Autenrieth, Achim; Kilper, Daniel C.; Bauschert, Thomas; Ruffini, Marco ECOC 2023 : 49th European Conference on Optical Communications, 1-5 October 2023 2024 <https://doi.org/10.1049/icp.2023.2429>

**MS Estonia ferry investigation continues, no additional funds yet allocated [Online resources]**

Linnart, Mart news.err.ee 2022 [MS Estonia ferry investigation continues, no additional funds yet allocated](#)

**Novel digital twin concept for industrial application. Study case: propulsion drive system**

**Jegorov, Sergei; Rassölklin, Anton; Rjabtšikov, Viktor; Ibrahim, Mahmoud; Kuts, Vladimir** Proceedings of ASME 2022 International Mechanical Engineering Congress and Exposition (IMECE2022), 2B: Columbus, Ohio, USA, October 30 - November 3, 2022 2022 / art. IMECE2022-97243, V02BT02A011, 6 p. <https://doi.org/10.1115/IMECE2022-97243>

**Quality and accuracy of digital twin models for the neighbourhood level building energy performance calculations**

**Parts, Egert-Ronald; Pikas, Ergo; Parts, Tuule Mall; Arumägi, Endrik; Liiv, Innar** E3S Web of Conferences : 11th International Conference on Indoor Air Quality, Ventilation and Energy Conservation in Buildings, IAQVEC2023 2023 / art. 04021 <https://doi.org/10.1051/e3sconf/202339604021>

**Reimagining laboratory learning with digital twins and extended reality**

**Alsaleh, Saleh Ragheb Saleh** 22nd International Symposium "Topical Problems in the Field of Electrical and Power Engineering". Doctoral School of Energy and Geotechnology III : Pärnu, Estonia, August 23-26, 2023 2023 / p. 25-26 : ill [https://www.estr.ee/record=b5570906\\*est](https://www.estr.ee/record=b5570906*est)

**Review of electric vehicle testing procedures for digital twin development: a comprehensive analysis**

**Rjabtšikov, Viktor; Rassölklin, Anton; Kudelina, Karolina; Kallaste, Ants; Vaimann, Toomas** Energies 2023 / art. 6952 <https://doi.org/10.3390/en16196952>

**ROS middle-layer integration into Unity3D as an interface option for propulsion drive simulations of autonomous vehicles**

**Kuts, Vladimir; Rassölklin, Anton; Jegorov, Sergei; Rjabtšikov, Viktor** Proceedings of the Estonian Academy of Sciences 2021 / p. 392-398 : ill <https://doi.org/10.3176/proc.2021.4.04> [Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS](#)

**Spatial representation of self-driving vehicle for virtual entity of digital twin**

**Rassölklin, Anton; Maksimkins, Pavels; Stupans, Andrejs; Rjabtšikov, Viktor; Šenfelds, Armands; Kuts, Vladimir** Computer 2024 / p. 58-66 <https://doi.org/10.1109/MC.2023.3319108>

**Synchronizing physical factory and its digital twin through an IIoT middleware : a case study**

**Tallinna Tehnikaülikool teeb oma hoonetest ülitäpse 3D mudeli ukselinkideni välja**

Alvela, Ain postimees.ee 2023 [Tallinna Tehnikaülikool teeb oma hoonetest ülitäpse 3D mudeli ukselinkideni välja](#)

**Tallinna Tehnikaülikool tegi oma hoonete halduses ja hoolduses digipöörde**

Alvela, Ain ehitusuudised.ee 2023 [Tallinna Tehnikaülikool tegi oma hoonete halduses ja hoolduses digipöörde](#)

**Tallinna Tehnikaülikooli uus labor mõjutab digitaalsete kaksikute võidukäiku Eesti tööstuses**

Ehitusuudised : [ajalehe Äripäev lisa] 2022 / lk. 58 [Tallinna Tehnikaülikooli uus labor mõjutab digitaalsete kaksikute võidukäiku Eesti tööstuses https://www.estet.ee/record=b2050444\\*est](#)

**Tallinna Tehnikaülikooli uus labor mõjutab digitaalsete kaksikute võidukäiku Eesti tööstuses [Võrguväljaanne]**

ehitusuudised.ee 2022 [Tallinna Tehnikaülikooli uus labor mõjutab digitaalsete kaksikute võidukäiku Eesti tööstuses](#)

**TalTech osaleb projektis, mis aitab tagada ELis energiajulgeolekut ja vähendada CO<sub>2</sub> jalajälge**

digi.geenius.ee 2024 [TalTech osaleb projektis, mis aitab tagada ELis energiajulgeolekut ja vähendada CO<sub>2</sub> jalajälge](#)

**TalTech teeb oma õppelinnaku hoonetest digitaalse 3D-mudeli**

Alvela, Ain EhitusEST 2023 / lk. 12-15 : ill [https://www.estet.ee/record=b4442657\\*est](https://www.estet.ee/record=b4442657*est)

**Tarneahela digitaliseerimine kui juhi töövahend**

Ševtšenko, Eduard Director. Inseneeria 2020 / lk. 74-77 : fot [http://www.estet.ee/record=b2336521\\*est](http://www.estet.ee/record=b2336521*est)

<https://director.ee/2020/10/28/tarneahela-digitaliseerimine-kui-juhi-toovahend/>

**Tehnikaülikoolis kirjutatakse ravirobotitele uut tarkvara**

Imeline Teadus 2021 / lk. 20 : fot [https://www.estet.ee/record=b2747925\\*est](https://www.estet.ee/record=b2747925*est)

**Tootmislogistika roboti digikaksik teeb tootmise juhtimise mugavamaks**

Mente et Manu 2021 / lk. 31 [Mente et Manu 2/2021](#)

**Urban hubs, participation, citizen science and digital tools : pathways to more sustainable and democratic urban quarters**

Dembski, Fabian; Goldfarb, Doron; Guba, Beate; Ilves, Laugren; Sarv, Lill; Wössner, Uwe; Maremäe, Andres Integrated planning in a world of turbulence : book of abstracts, vol. 25, 1 2023 / art. 596 <https://proceedings.aesop-planning.eu/index.php/aesopro/issue/view/15/15>

**User-centred design in industrial collaborative automated systems**

Pizzagalli, Simone Luca; Kuts, Vladimir; Otto, Tauno Proceedings of the Estonian Academy of Sciences 2021 / p. 436-443 : ill <https://doi.org/10.3176/proc.2021.4.10> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

**Uses of the digital twins concept for energy services, intelligent recommendation systems, and demand side management: A review**

Onile, Abiodun Emmanuel; Machlev, Ram; Petlenkov, Eduard; Levron, Yoash; Belikov, Juri Energy reports 2021 / p. 997–1015 <https://doi.org/10.1016/j.egyr.2021.01.090> Journal metrics at Scopus Article at Scopus Journal metrics at WOS Article at WOS

**Uudne digikaksik töstab robotijuhtimise uuele tasemele**

Horisont 2020 / lk. 4 : fot [https://www.estet.ee/record=b1072243\\*est](https://www.estet.ee/record=b1072243*est)

**Uut laorobotit saab juhtida virtuaalse kaksikuga**

Imeline Teadus 2021 / lk. 21 : fot [https://www.estet.ee/record=b2747925\\*est](https://www.estet.ee/record=b2747925*est)

**Vesiniku jõul liikuvad autod ja digitaalne tulevik**

Rassõlkin, Anton Elektrala 2021 / lk. 22-23 : ill [https://www.estet.ee/record=b1240496\\*est](https://www.estet.ee/record=b1240496*est)

**Virtual reality digital twin interfaces in human-robot collaboration**

Pizzagalli, Simone Luca 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. II" : Tallinn, Estonia, September 8-10, 2021 2021 / p. 23-24 [https://www.estet.ee/record=b5457278\\*est](https://www.estet.ee/record=b5457278*est)

**Virtual reality simulators for inclusion and participation : broadening perspectives on accessible cities and public space**

Kern, Leyla; Dembski, Fabian; Obst, Thomas; Bisinger, Laura; Falk, Benedict; Wössner, Uwe Mobility, Knowledge and Innovation Hubs in Urban and Regional Development : proceedings of REAL CORP 2022, 27th International Conference on Urban Development, Regional Planning and Information Society 2022 / p. 1025-1031 <https://doi.org/10.48494/REALCORP2022.2039>

**Work in progress : digital twin for propulsion drive of autonomous electric vehicle**

**Rassõlkin, Anton** 20th International Symposium "Topical problems in the field of electrical and power engineering. Doctoral school of energy and geotechnology. III" : Tallinn, Estonia, September 8-10, 2021 / p. 9-10 : ill [https://www.ester.ee/record=b5457278\\*est](https://www.ester.ee/record=b5457278*est)